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MULTI-CRITERIA EVALUATION: A TOOL FOR SELECTING SUSTAINABLE WASTEWATER MANAGEMENT OPTIONS IN RURAL AREAS

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Abstract

Currently, nearly half of the global population lacks access to safely managed sanitation services, with 70% residing in rural areas, highlighting a significant gap in achieving the UN Sustainable Development Goal of ensuring safe wastewater treatment. Rural areas, facing challenges such as depopulation and limited economic resources, find the construction and management of large communal wastewater systems increasingly impractical.

One potential sustainable solution to this global issue is decentralized wastewater treatment systems. These systems offer flexibility, sustainability, and cost-effectiveness while also enabling the reuse of reclaimed water and bio fertilizers, thereby contributing to environmental conservation and resource utilization. However, the selection of the most suitable decentralized systems depends on various factors, requiring a comprehensive evaluation process.

This article explores the feasibility of utilizing the multicriteria decision-making approach known as PROMETHEE to optimize decentralized wastewater treatment system models. The process involves the selection and evaluation of economic, ecological, and social criteria, with active participation from both decision-makers and end users.

Key words: decentralized wastewater treatment, multi-criteria decision-making, PROMOTHEE

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